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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/548,315

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Hideshi Iki

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EXAMINER

SINGH, PREM C

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/548,315	Applicant(s) IKI ET AL.	
	Examiner PREM C. SINGH	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/07/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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2. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatanaka et al (US Patent 6,217,748) in view of Waku et al (US Patent 5,741,414).

3. With respect to claims 1 and 2, Hatanaka discloses a process for hydrotreatment of a gas oil fraction (See abstract), the process comprising;

providing as a feed oil a hydrorefined petroleum based hydrocarbon oil with a sulfur content of 10 ppm by mass (See column 9, lines 25-29) with a boiling point range of 200 to 380°C (See column 6, lines 56-62), and

subjecting said feed oil to hydrotreatment in the presence of a hydrogenation catalyst to obtain an ultralow sulfur gas oil fraction having a further reduced sulfur content (See claim 2, column 10, lines 54-57).

Hatanaka invention does not specifically disclose sulfur content of the finally produced ultralow sulfur gas oil fraction, however, the invention does disclose, "The sulfur content in the diesel gas oil product can be decided arbitrarily if necessary, and a necessary desulfurization ratio can be achieved by the optimization of reactive conditions of reaction temperature, pressure, and LHSV etc." (Column 6, lines 66-67; column 7, lines 1-3). Obviously, the conditions in the hydrotreating process can be adjusted to achieve any desulfurization ratio. Thus, it would have been obvious to one skilled in the art at the time of invention to modify Hatanaka invention and specify the sulfur content of the finally produced ultralow sulfur gas oil fraction which is expected to be in a range as claimed because Hatanaka invention can produce an ultralow sulfur gas oil fraction with the target sulfur content.

Hatanaka invention does not specifically disclose aromatics content of the feed and the final ultralow sulfur gas oil fraction.

Waku invention discloses a hydrotreating process using feed, catalyst, and operating conditions similar to Hatanaka to produce gas oil containing low-sulfur and low aromatics content (See abstract). Waku also discloses sulfur content of about 90 ppm and aromatics content of 17 wt% after the second step of hydrotreating (See Table 2, column 7, lines 27-29).

Thus, it would have been obvious to one skilled in the art at the time of invention to modify Hatanaka invention and specify the aromatics content along with the sulfur content of the gas oil as disclosed by Waku. It is expected that in Hatanaka's process of final hydrotreating (See Hatanaka: column 10, lines 54-57) the ultralow sulfur gas oil produced will have sulfur and aromatics content in a range as claimed because Hatanaka is using similar feed, catalyst and operating conditions as claimed by the Applicant.

Although Waku does not specifically disclose monocyclic and bicyclic aromatics content, however, the invention does disclose the total aromatics content (See Table 1 and 2). Thus, it would have been obvious to one skilled in the art at the time of invention to specify the monocyclic and bicyclic aromatics content for proper characterization of the finished gas oil. Since the total aromatics content of the feed gas oil in Waku invention is in the claimed range, it is expected that the monocyclic and bicyclic aromatics content separately, will necessarily be in a range as claimed.

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4. With respect to claim 3, Hatanaka discloses hydrotreatment conditions with temperature 320°C, pressure 3 MPa, LHSV = 1 h⁻¹ and hydrogen to oil ration of 1000 scf/bbl (See column 9, lines 26-29).

5. With respect to claim 4, Hatanaka invention does not specifically disclose paraffin and naphthene content of feed oil and the hydrotreated oil, however, the invention does disclose using a feed with a boiling range of 200 to 380°C comprising diesel gas oil such as straight run diesel gas oil, catalytic cracking diesel gas oil and vacuum gas oil (See column 6, lines 56-62) similar to the Applicant's claim. Since a typical gas oil will inherently have paraffin, naphthene, and aromatics content in a typical range, it is expected that the paraffin and naphthene content of the feed oil and the hydrotreated oil in Hatanaka invention should necessarily be in the claimed range.

6. With respect to claims 5-7, Hatanaka invention discloses that the hydrogenation catalyst includes at least one active metal from Group VIII, including Rd, Pd and Pt supported on a porous support comprising alumina, titania, zirconia, boria and silica (See column 4, lines 11-21).

7. With respect to claims 8 and 9, combined inventions of Hatanaka and Waku disclose the steps and the process required to produce the claimed ultralow sulfur and low aromatic gas oil fraction with not greater than 1 ppm sulfur and not greater than 1% aromatics. The process steps are discussed under claim 1. It is expected that the

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ultralow sulfur and low aromatics gas oil obtained in the combined hydrotreatment process of Hatanaka and Waku meets the Applicant's claim.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

lino et al (US Patent 5,336,394).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PREM C. SINGH whose telephone number is (571)272-6381. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PS 081008
/In Suk Bullock/
Examiner, Art Unit 1797